Remarks

Claims 1-6, 9-25 and 32-40 are pending. Claims 3, 9-10, 16-17, 24, 25 and 40 are stated to be under consideration in the Office Action. However, because claim 14 is specifically recited in a rejection in the Office Action, applicants have reasonably treated claim14 as under consideration for the purposes of this response. If this is not correct, clarification by the Office is respectfully requested. Applicants also respectfully assert that, if applicants' approach is deemed incorrect by the Office, a notice of non-compliant amendment would be unfairly burdensome to the applicant due to the confusing language in the Office Action.

Claims 9 and 10 are amended as supported in those claims as filed and throughout the specification. Also, claim 14 is amended to restrict it to the elected invention and to incorporate the same changes made to claims 9 and 10 as supported in claims 9, 10 and 14 as filed. Correspondingly, claim 17 is also amended. Claim 24 is amended to make it depend from claim 9. New claims 41 and 42 are added to correspond to amended claims 24 and 25, but depending from claim 10 with support in claims 24 and 25 as filed. These amendments and new claims add no new matter and their entry is respectfully requested.

New Matter Objection and Rejection

The amendment filed February 19, 2003 is objected to under 35 U.S.C. § 132, and claims 9-10 and 40 are rejected under 35 U.S.C § 112, first paragraph as improperly reciting a negative

limitation. More specifically, the Office asserts that the recitation "wherein the mosaic polypeptide is not the HCV polypeptide" is not disclosed in the application and constitutes new matter.

Applicants respectfully traverse. MPEP section 2173.05(i) states that "The current view of the courts is that there is nothing inherently ambiguous or uncertain about a negative limitation. So long as the boundaries of the patent protection sought are set forth definitely, albeit negatively, the claim complies with the requirements of 35 U.S.C. 112, second paragraph. Some older cases were critical of negative limitations because they tended to define the invention in terms of what it was not, rather than pointing out the invention...Any negative limitation or exclusionary proviso must have basis in the original disclosure. *If alternative elements are positively recited in the specification, they may be explicitly excluded in the claims.*" (Emphasis added.) In the case of the HCV polyprotein, it is positively recited in many places in the specification. For example, page 2, line 30 to page 3, line 6, recite "HCV polyprotein" repeatedly; see also claims 2-6 as filed, which all recited "HCV polyprotein".

Moreover, in *In re Johnson*, 558 F.2d 1008, 194 USPQ 187 (CCPA 1977), the CCPA held that a claim to a genus with the limitation of a negative proviso that did not appear in the original specification complied with the written description requirement (for the purpose of establishing benefit of an earlier filing date to overcome a prior art rejection based on applicants' earlier foreign-filed patent). The negative proviso, which was inserted to avoid having the claim read on a lost interference count, literally excluded more than the two species disclosed in the

application (and the full scope of the negative proviso was clearly understood and acknowledged by the court; *ibid* at Note 12). The court stated:

> The notion that one who fully discloses and teaches those skilled in the art how to make and use a genus and numerous species there within, has somehow failed to disclose, and teach those skilled in the art how to make and use, that genus minus two of those species, and has thus failed to satisfy the requirements of § 112, first paragraph, appears to result in a hypertechnical application of legalistic prose relating to that provision of the statute.

Ibid at 1019.

The holding in *Johnson* was affirmed by the court in *In re Driscoll*, 562 F.2d 1245, 1250, 195 USPQ 434 (CCPA 1977), which observed (with regard to the court's reversal, in *Johnson*, of the Patent Office's refusal to grant Johnson's application the benefit of an earlier filing date, based on an alleged lack of written description, in the original application, for the negative proviso):

> In reversing the rejection, the court there observed that the applicants were merely excising the invention of another, to which they were not entitled, rather than creating an artificial subgenus or claiming new matter.

Ibid at 1250.

Therefore, there is no requirement in the patent law that the specification must state that something can be excluded in order for there to be support for that exclusion. The only requirement is that what is to be excluded must have been disclosed. Because the application

discloses "HCV polyprotein," the recitation of a mosaic polypeptide, wherein the mosaic polypeptide is not the HCV polyprotein, does not constitute new matter and should not have been rejected under 35 U.S.C. 112, first paragraph for the negative limitation. Thus claims 9, 10 and 40 are not properly rejected on this basis, and withdrawal of the rejection is respectfully requested.

Rejections under 35 U.S.C. § 102

Claim 10 is rejected under 35 U.S.C. 102(b) as being allegedly being anticipated by Jin et al. (Arch. Biochem. Biophy. 1995, Vol. 323, No. 1, pp. 47-53). The Office Action further states the following in this regard:

> Jin et al. disclose a recombinant HCV NS3 comprising amino acid residues 1207-1612 with a polyhistidin tag. Because the rejected claims use an open language "comprising" to describe the claimed mosaic polypeptide, Office interprets the claimed polypeptide broadly as any polypeptide having the amino acid residues of NS3 amino acid residues 1470-1573, but not only containing amino acid residues 1470-1573, in combination with any other non-NS3 sequence (See lines 54 on col. 5 to line 23 on col. 7). Therefore, the claimed invention is anticipated by the cited reference.

Applicants have amended claim 10 herein to recite an "epitope of HCV NS3 protein consisting of amino acid residues 1471-1573." As amended, claim 10 excludes the above NS3 epitope (1207-1262) taught by Jin and Peterson, and is not anticipated by Jin and Peterson. Thus, withdrawal of this rejection is merited and is respectfully requested.

Claim 14 is rejected under 35 U.S.C. 102(b) as allegedly being anticipated by Yagi et al. (Biol. Pharm. Bull. 1996, Vol. 19, No. 10, pp. 1254-1260). The Office Action further states the following in this regard:

> Yagi et al. disclose a chimeric HCV antigenic polypeptide named CepCM comprising more than one of HC antigenic epitopes from NS3 and other structural and non-structural antigenic protein fragments including core and NS4. Yagi et al. further teach to use the polypeptide for doing immunoassay after coating the micro-well plates with CepCM polypeptide antigen to detect the anti-HCV antibodies in biological specimens from HCV infected patients (See lines 39 on 1st col. of page 1257 through 20 on 2nd col. of page 1258, especially, tables 3 and 4). They found that CepCM contains some NS3 epitopes and NS4 epitopes (See line 5 on 1st col. of page 1258 to line 4 on 2nd CO1. of page 1258). Therefore, the claimed invention is anticipated by the cited reference.

As noted above, on page 2 of the Office Action, the Examiner indicates that claims 11-15 are withdrawn (paragraph 4 of Office Action), and that the claims 3, 9-10, 16-17, 24, 25 and 40 are considered (paragraph 3 of Office Action). Nevertheless, due to the fact that the Examiner rejected claims 14 and 15 in this rejection, applicants are compelled to respond as if claim 14 is under consideration. Furthermore, as amended, claims 14 is restricted to the same invention as the other claims under consideration, and, thus, should be considered.

The CepCM chimeric protein taught by Yagi does not include the epitopes recited in amended claim 14. Yagi et al. teach only residues 1238-1313 and 1363-1460 of NS3 and residues 1-43 and 66-80 of the core protein (see Fig. 1). Since none of these is an epitope comprising residues 1471-1573 of NS3 ore residues 1-91 of core protein, Yagi does not disclose a polypeptide having all of the elements of claim 14 even prior to amendment. Thus, this rejection is believed to be improper, and its withdrawal is respectfully requested.

Furthermore, amended claim 14 recites a "polypeptide comprising one or more of an isolated antigenic epitope of HCV core protein consisting of amino acid residues 1-91 of the HCV polyprotein or an isolated antigenic epitope of HCV NS3 protein consisting of amino acid residues 1471-1573 of the HCV polyprotein." Yagi et al. does not teach the recited core protein epitope or the recited NS3 epitope. Thus, this rejection is overcome with regard to amended claim 14 and its withdrawal is respectfully requested.

Claims 9-10 are rejected under 35 U.S.C. 102(b) as allegedly being anticipated by Houghton et al. (US Patent NO. 5,683,846A). In this regard, the Office Action further states the following:

> Houghton et al. disclose a combination antigenic polypeptide comprising HCV core (1-120 amino acid residue, and two additional HCV antigens selected from group consisting of NS3 from amino acid residues of 1050-1640, HCV NS4 from amino acid residues 1640-2000 and HCV NS5 from amino acid residues 2000-3011). The antigenic polypeptide taught by Houghton et al. contains sequence exogenous to HCV and is expressed as a recombinant fusion protein (See line 1-35 on col. 5). Furthermore, they teach that an immunoassay by using recombinant antigenic polypeptide comprising HCV core and NS3 to detect HCV antibodies in a biological sample (See lines 11 on col. 6 through 23 on col. 7). Because the rejected claims use an open language "comprising" to describe the claimed mosaic polypeptide, Office interprets the claim 10 broadly as any polypeptide having the amino acid residues of NS3 amino acid residues 1470-1573, but not only containing amino acid residues 1470-1573, in combination with any other non-NS3 sequence (See lines 54 on col. 5 to line 23 on col. 7). Therefore, the HCV polypeptide disclosed by Houghton et al.

Applicants have amended claim 9 to recite an "epitope of HCV core protein consisting of amino acid residues 1-91." Houghton et al. teach the core protein (amino acids 1-120) or c22 (amino acids 1-122). Houghton et al. do not teach a polypeptide comprising an HCV core epitope consisting of amino acids 1-90. As amended, claim 9 does not read on the peptides

taught by Houghton et al, and is not anticipated by Houghton et al. Thus, withdrawal of this rejection is merited and is respectfully requested.

Claim 10 as amended excludes the polypeptide of Houghton et al., which includes the NS3 epitope C33c (amino acids 1192-1457) or the whole NS3 protein, neither of which consists of amino acids 1471-1573 of the HCV polyprotein. Thus claim 10 is not anticipated by Houghton et al., and withdrawal of this rejection is respectfully requested.

Claims 14-15 are rejected under 35 U.S.C. 102(b) as allegedly anticipated by Barrera et al. (Vox Sang 1995, Vol. 68, pp. 15-18). The Office Action states that Barrera et al. disclose the HCV ELISA.3 assay that incorporates an NS5 antigen in addition to the recombinant HCV antigens core, NS3 and NS4 for detecting the HCV antibodies in clinical specimens, and concludes that the claimed invention is anticipated by the cited reference.

As noted above, due to the fact that the Examiner rejected claim 14 in this rejection, applicants respond as if claim 14 is under consideration. Furthermore, as amended, claim 14 is restricted to the same invention as the other claims under consideration, and, thus, should be considered.

Claim 14 as amended excludes the ELISA 2 and ELISA 3 polypeptides of Barrera et al., which include a different NS3 epitope (c200) and a different core protein epitope (c22-3) than

are recited in claim 14. The disclosure of Barrera et al., therefore, does not anticipate claims 14 or 15. Thus, withdrawal of this rejection is merited and is respectfully requested.

Claims 9-10 and 24-25 are rejected under 35 U.S.C. 102(b) as allegedly being anticipated by Okayma et al. (EP 464 287A1). In this regard the Office Action states the following:

> 677th, 333rd to 6371, or 333rd to 9362nd. The vaccine composition further comprises at least one pharmaceutical acceptable carrier (Claims 4, 6 and 21-23). While Okayma et al. is silent for the limitation of an antigenic epitope(s), the polypeptide disclosed by them inherently encodes these HCV core and NS3-NS5 regions including the epitopes (See lines 41-47 on page 9). Therefore, the claimed invention is anticipated by the cited reference.

Claims 9, 10, 24 and 25 are amended as described above. Okayama et al. does not teach a polypeptide comprising an NS3 epitope consisting of amino acids 1471-1573 of the HCV polyprotein (claims 10, 41 and 42), nor does it teach a polypeptide comprising a core protein epitope consisting of amino acids 1-91 of the HCV polyprotein (claims 9, 24 and 25). Okayama et al. teaches what they describe as the entire C protein (333^{rd} – 677^{th} nucleotides) and a 30 amino acid region (333^{rd} – 422^{nd} nucleotides) of the core protein. Okayama also teaches only the entire NS3 protein. Amended claims 9, 10, 24 and 25 exclude the polypeptides taught by Okayama et al., including the entire HCV polyprotein, and are not anticipated by Okayama et al. Thus, withdrawal of this rejection is merited and is respectfully requested.

New claims 41 and 42, which correspond to claims 24 and 25 are also free of the cited art for the same reasons that claims 24 and 25 are not anticipated.

Claims indicated to be free of the art

Applicant acknowledges that the Office has deemed claims 3, 16, 17 and 40 to be free of the art.

No fee is believed due; however, the Commissioner is hereby authorized to charge any fees which may be required, or credit any overpayment to Deposit Account No.14-0629.

Respectfully submitted,

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CERTIFICATE OF MAILING UNDER 37 C.F.R. § 1.8

I hereby certify that this correspondence, including any items indicated as attached or included, is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on the date indicated below.

Gwendolyn D. Spratt — 2-4-04

Gwendolyn D. Spratt — Date